OHIO STATE UNIVERSITY
MAR 8
LIBRARY
VET. MED. LIBRARY

INTERNATIONAL BULLETIN OF BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

VOLUME 5 January 15, 1955 NUMBER 1-4

CONTENTS

PRICE, AUDREY U. and H.D. HOLT
A new Salmonella serotype (Salmonella colindale) of human origin 1
DOUGLAS, S. HILDA and JOAN TAYLOR
A new Salmonella serotype (Salmonella deversoir) isolated from human faeces 5
JUDICIAL COMMISSION
Status of the generic name Selenomonas von Prowazek 7
EDITORIAL BOARD
The Status and synonymy of the bacterial generic name Asterococcus 13
JUDICIAL COMMISSION
Status of generic names published without names of included species 21
EDITORIAL BOARD
Status of the generic names Nitromonas, Nitrosomonas, Nitrosococcus, and Nitrobacter . 27
MEMBERSHIP of Committees, Commissions, and Subcommittees, 1955 33

QR
598
S

OFFICIAL ORGAN OF THE JUDICIAL COMMISSION AND OF THE INTERNATIONAL COMMITTEE ON BACTERIOLOGICAL NOMENCLATURE

PUBLISHED QUARTERLY

FOR THE INTERNATIONAL ASSOCIATION OF MICROBIOLOGISTS
WITH THE COOPERATION OF UNESCO AND IUBS

IOWA STATE COLLEGE PRESS
PRESS BUILDING, IOWA STATE COLLEGE
AMES, IOWA U.S.A.

INTERNATIONAL BULLETIN
OF
BACTERIOLOGICAL NOMENCLATURE
AND
TAXONOMY

* * * * * * * *

EDITORIAL BOARD

PROF. R. E. BUCHANAN, Chairman, Room 316, Curtiss Hall, Iowa State College, Ames, Iowa, U.S.A.

DR. S. T. COWAN, National Collection of Type Cultures, Central Public Health Laboratories, Colindale Avenue, London N.W. 9, England.

PROF. T. WIKÉN, Institut für Bakteriologie u. Gärungsbiologie. Eidgenoss. Techn. Hochschule, Universitätstrasse 2, Zurich 6, Switzerland.

INTERNATIONAL COMMITTEE ON
BACTERIOLOGICAL NOMENCLATURE

PROF. E.G.D. Murray, Chairman. Department of Bacteriology, McGill University, Montreal, P.Q., Canada.

DR. S. T. COWAN, Permanent Secretary for Medical and Veterinary Bacteriology.

PROF. T. WIKÉN, Permanent Secretary for Nonmedical Bacteriology.

* * * * * * * *

Address all Communications relative to Publication to:
Prof. R.E. Buchanan
Room 316, Curtiss Hall
Ames, Iowa, U.S.A.

Address all Communications relative to Subscriptions to:
Iowa State College Press
Press Building
Ames, Iowa, U.S.A.

SUBSCRIPTION PRICE
TWO DOLLARS PER YEAR

* * * * * * * *

Application for entry as second class matter pending.

INTERNATIONAL BULLETIN
OF
BACTERIOLOGICAL NOMENCLATURE
AND
TAXONOMY

Volume 5 Jaunary 15, 1955 No. 1

A NEW SALMONELLA SEROTYPE (SALMONELLA COLINDALE) OF HUMAN ORIGIN

Audrey U. Price, M.B., B.S., D.P.H.
Salmonella Reference Laboratory,
Colindale, London, England
and
H.D. Holt, Dip. Bact., M.R.C.S., L.R.C.P.
Central Public Health Laboratory,
Colindale, London, England

A woman of twenty-seven, employed as an air-stewardess, arrived in London on 16th December, 1951, after several days in Nigeria. Within twenty-four hours she developed acute diarrhoea, which lasted for more than a week. The infection might have been picked up in Nigeria, at any of several airports of call en route, or even in London. The patient's sister with whom she lives, and who gave a history of a similar attack two to three weeks previously, might have been excreting the organism. Unfortunately, the sister's faeces were not sent for examination.

Bacteriology

Faeces were cultured on the sixth day of the illness and an organism of the genus Salmonella was isolated.

This motile, Gram-negative bacillus produced a colony typical of a Salmonella on MacConkey agar. Glucose, maltose, mannitol, dulcitol, sorbitol, arabinose, rhamnose, xylose, trehalose, and inositol were fermented with the production of acid and gas. Lactose, sucrose, salicin, adonitol, inulin, and raffinose were not fermented after twenty-one days' incubation. The citrate (Simmons) utilization test was positive, hydrogen sulphide was produced, indole was not formed and urea was not hydrolyzed. The Voges-Proskauer test was negative, the methyl-red test positive, gelatin was not liquefied. Mucate was utilized and d-tartrate fermented.

When examined serologically this organism was agglutinated to titre by S. oranienburg O serum, and slide-agglutinated by monospecific sera containing factors 6 and 7. Reciprocal absorption tests showed that the somatic structure of the new serotype was identical with that of S. oranienburg.

The organism was diphasic. Phase 1 was agglutinated to titre by S. rubislaw H (r) serum, and reciprocal absorption tests proved that phase 1 was identical with S. rubislaw H (r).

Phase 2 was agglutinated to titre by S. gaminara H (1, 7) serum and, when tested with monospecific sera for factors 2, 3, 5, 6, and 7, was agglutinated by factor 7 serum only. A suspension of the organism failed to remove all agglutinins from the S. gaminara H nonspecific serum. After absorption a titre of 1:1600 (16 per cent) was left to S. gaminara H nonspecific (1, 7 +) and to S. isangi H nonspecific (1, 5 +): suspensions of phase 2 of the new serotype, S. bredeney H nonspecific, S. newport var. puerto rico, and S. thompson var. berlin were not agglutinated at a titre of 1:50. Phase 2 of the new serotype does not therefore contain the "plus" factor of S. gaminara or S. isangi, described by Hormaeche et al. (1944).

Phase 2 was agglutinated to titre by S. bredeney H nonspecific serum and by absorption removed all homologous agglutinins from this serum. The serum made from the new serotype agglutinated S. bredeney H nonspecific to titre and all homologous agglutinins were removed from it by a S. bredeney suspension. Phase 2 of the new serotype is therefore, 1, 7.

The antigenic structure is represented by the symbols 6, 7 : r : 1, 7.

The patient's serum taken on the seventeenth day after the onset of symptoms failed to agglutinate O and H suspensions of the organism at a dilution of 1:20.

Since this strain was received, five others have been identified, all from human faeces. Two cultures were isolated by Capt. J. Nagington, during the routine investigation of food-handlers; the patients were two healthy Cypriots in Fayid. Three cultures were isolated by Dr. E.H. Gillespie, two from patients in the same household, who were convalescent following an attack of Sonne dysentery, the third a healthy patient who was being investigated in relation to an outbreak of staphylococcal food-poisoning.

SUMMARY

A new Salmonella serotype (6,7 : r : 1,7) is described, which was isolated from the faeces of a woman suffering from acute diarrhoea. The name of the new serotype is Salmonella colindale.

REFERENCE

Hormaeche, E., C.A. Peluffo, and V. Ricaud de Pereyra. A new salmonella type Salmonella carrau, with special reference to the 1,7 ..... phases of the Kauffmann-White classification. J. Bact. 47:323-326. 1944.

INTERNATIONAL BULLETIN OF BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY
Volume 5 January 15, 1955 No. 1 pp. 5-6

A NEW SALMONELLA SEROTYPE (SALMONELLA DEVERSOIR) ISOLATED FROM HUMAN FAECES

J.F. Watkins, M.B., B.Ch.,
War Office Enteric Investigation Team,
Fayid, Egypt
and
S. Hilda Douglas, M.Sc., and Joan Taylor, M.B., D.P.H.
Salmonella Reference Laboratory,
Colindale, London, England

During the examination of Egyptian food-handlers, an organism which had the colonial appearance of a Salmonella was isolated from the faeces of a healthy adult. This organism produced acid and gas in glucose, maltose, mannitol, dulcitol, sorbitol, arabinose, rhamnose, xylose, trehalose, but failed to ferment lactose, sucrose, salicin, adonitol, inulin, raffinose, and inositol. Indole and urease were not formed nor was gelatin liquefied. It was VP-negative, MR-positive, utilized citrate, and produced H_2S. Mucate was utilized promptly and d-tartrate was fermented.

Investigation of the antigenic structure showed that the organism was not agglutinated by any of the 'O' sera against antigens 1 to 44. A serum made with the new strain, which had a homologous titre of 1:3200, failed to agglutinate any Salmonella 'O' suspensions. After consultation with Dr. Kauffmann, this organism was given a new 'O' symbol - 45.

The organism was diphasic, flagellar phase 1 being c, and flagellar phase 2 being e, n, x. Reciprocal absorption tests using S. paratyphi C and S. abortus-equi gave practically complete absorption, only 1 per cent of the homologous titre remaining in any absorption.

A second strain, with identical biochemical reactions and similar antigenic structure, was received from Dr. J. Boycott. This organism had been isolated from the faeces of a healthy tortoise, Testudo graeca, which has been imported from North Africa.

SUMMARY

A new Salmonella serotype (45 : c : e,n,x) is described, having a somatic structure not previously reported in the genus Salmonella. Two strains have been encountered, the first in a healthy Egyptian, the second in tortoise faeces. The name is Salmonella deversoir.

INTERNATIONAL BULLETIN OF BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY
Volume 5 January 15, 1955 No. 1 pp. 7-10

STATUS OF THE GENERIC NAME SELENOMONAS VON PROWAZEK

Judicial Commission
Preliminary Statement

Lessel and Breed (1) have called attention to the problem of the legitimacy of the generic name Selenomonas von Prowazek (2) and of its acceptance and emendation by Boskamp (3). They state: "This generic name was introduced into the literature by von Prowazek in 1913. However, he did not name any species as belonging in the genus, and the name did not have a valid status until Boskamp described the species Selenomonas palpitans from the caecum of a guinea pig." They review the literature and synonymy and conclude, "Selenomonas von Prowazek has been accepted by some as having priority, and general usage has favored its acceptance. Therefore, Selenomonas has been used in this discussion, while awaiting a review of the status of the two names [Selenomonas and Selenomastix] by the International Judicial Commission on Bacteriological Nomenclature."

This reference of the problem to the Judicial Commission raises a point which is not specifically covered in the Bacteriological Code. Lessel and Breed assume that the generic name Selenomonas had no status in nomenclature until the publication by Boskamp. The validity of that assumption should first be examined.

Von Prowazek (2) in July, 1913, published a paper commenting upon and describing certain parasites from West African animals. In the third section of his paper he notes that he examined blood smears from various game animals (including a gazelle, a giraffe, and a harness antelope) which had been shot, with some escape of gut contents into the blood stream. He noted the presence of flagellates, yeasts, two species of Borellia and various intestinal bacteria.

In these preparations he observed organisms closely resembling Spirillum sputigenum Miller (?). He emphasized that S. sputigenum differed from other members of the genus Spirillum in the possession of a laterally attached flagellum, and that the mouth spirillum has been accurately studied by Löwenthal (4) who observed the inclusion in the cell of one or two "nuclei." He quotes Löwenthal in some detail, and stresses the thick half-moon shape of the organism and the

insertion of the flagellum laterally in the concavity of the crescent. He concluded that the organism did not belong in the genus Spirillum, perhaps not with the bacteria. Von Prowazek further quotes from Kerandel (5) in 1909. This author observed similar organisms in the blood of an antelope and noted the resemblance to Spirillum sputigenum and also to an organism from the paunch of ruminants found by Certes (6) in 1889 and placed by the latter in the protozoan genus Ancyromonas.

Von Prowazek then described the organisms observed in his smears. A series of nine colored illustrations are included. He concluded that the organisms could not be regarded as belonging to the genus Spirillum, and proposed the generic name Selenomonas. He did not join this generic name with any specific epithet, he gave no new species names.

On the assumption that von Prowazek neither designated nor named any species, Lessel and Breed (1) suggest that it may be necessary to regard Selenomonas as a nomen nudum. This suggestion requires due consideration.

A study of the article by von Prowazek and of the pertinent rules of the Bacteriological Code reveal the following facts.

1. The generic name Selenomonas von Prowazek seems to meet all of the set requirements of valid publication. It was "effectively published" (Rule 11) in a standard bacteriological journal. It was "accompanied by a description of the group", including not only original description, but also by quotations of pertinent descriptions by earlier authors and by reference to their descriptions.

2. The generic name Selenomonas was not coupled with a specific epithet and no new species name was given. But this does not mean that no identifiable species were assigned to the genus. It seems evident from a careful reading of the text that von Prowazek definitely agreed with earlier authors that Spirillum sputigenum should be removed from the genus Spirillum. He included it in his newly described genus. This would make the species name Selenomonas sputigena (Flügge) von Prowazek, though the author did not himself publish this combination. He apparently approved the removal of the species placed by Certes (6) in the protozoan genus Ancyromonas and its allocation to the same genus as Spirillum sputigenum. Certes had named his paunch organism Ancyromonas ruminantium. Von Prowazek's allocation of this organism to Selenomonas would make the species S. ruminantium

(Certes) von Prowazek. Unfortunately von Prowazek did not definitely indicate the name of the species to which he believed his organism observed in the blood smear belonged. It is not clear whether or not he regarded it as being the rumen organism of Certes.

Woodcock and Lapage (7) in November, 1913 concluded that an organism observed in the contents of the rumen of the goat was apparently the same as the organism named Ancyromonas ruminantium by Certes, noted and studied also by Kerandel (5). They decided that their organism clearly did not belong to the protozoan genus Ancyromonas, and proposed the new generic name Selenomastix with the species S. ruminantium (Certes) Woodcock and Lapage. Von Prowazek's paper was published in July, 1913, and that of Woodcock and Lapage in November, 1913. Selenomonas clearly has priority of publication, Selenomastix is a later synonym.

Simons (8) in 1921 named an organism found in the caecum of a guinea pig Selenomonas palpitans. This organism he had previously briefly noted (9) in 1920 as a Selenomonas. The species name was validly published with what might seem to be a definite reference to a previous description, making the species name legitimate. However, examination of Simons' earlier paper reveals that in addition to a species of Oscillaria occurring in the gut contents he regularly found "noch 2 merkwürdige Mikroorganismen als jodophil erwiesen" and in a footnote stated that the second organism (to be described later) belonged to von Prowazek's "Flagellatengattung Selenomonas." This use by Simons was apparently the first instance of the recognition of the genus name Selenonomas after its proposal by von Prowazek. Simons did not describe the organism, stating that a description would be published later. The species was described in 1922 by Boskamp, however, the latter author definitely did not propose the name. Boskamp concluded that Selenomonas was probably most satisfactorily placed in the family Spirillaceae. He rather tentatively designated as Selenomonas sputigena the mouth organism of Miller.

On the basis of the preceding analysis, the following draft proposals for an Opinion by the Judicial Commission are submitted for consideration and criticism by all interested. The columns of the Bulletin are open for publication of pertinent discussion.

Draft Proposal. Alternative 1. The generic name Selenomonas von Prowazek 1913 was not validly published and is without standing in nomenclature because the author did not definitely use a specific epithet with the name of the genus and propose either a new name or a new combination. The generic name Selenomonas von Prowazek is a nomen rejiciendum. On the basis of the evidence submitted, Selenomastix Woodcock and Lapage 1913 with the type species Selenomastix ruminantium (Certes) Woodcock and Lapage should be recognized as legitimate and correct.

Draft Proposal. Alternative 2.

(a). The generic name Selenomonas von Prowazek 1913 was validly published with an accompanying description of the genus.

(b). The species Spirillum sputigenum Flügge is characterized and adequate references to description given; it was definitely assigned to the genus.

(c). Selenomonas sputigena (Flügge) von Prowazek (basonym Spirillum sputigenum Flügge) is the type species of Selenomonas.

(d). The generic name Selenomonas von Prowazek is placed in the list of nomina generum conservanda.

REFERENCES

1. Lessel, E. F. Jr., and R. S. Breed. Selenomonas Boskamp, 1922–a genus that includes species showing an unusual type of flagellation. Bact. Revs. 18:165-167. 1954.
2. von Prowazek, S. Zur Parasitologie von Westafrika. Centr. Bakt. Parasitenk., Abt. 1, Orig. 70:32-36. 1913.
3. Boskamp, E. Ueber Bau, Lebensweise und systematische Stellung von Selenomonas palpitans (Simons). Centr. Bakt. Parasitenk., Abt. 1, Orig. 88:58-73. 1922.
4. Löwenthal, W. Zur Kenntnis der Mundspirochäten. Med. Klinik, 2:278-281. 1906.
5. Kerandel, J. Sur quelques hématozaires observés au Congo. Bull. Soc. path. exotique. 2:208. 1909.
6. Certes, A. Note sur les micro-organismes de la panse des ruminants. Bull. Soc. Zool. France, 14:70-73. 1889.

7. Woodcock, H.M., and Lapage, G. On a remarkable type of protistan parasite. Quart. J. Micro. Sci., N.S., 59:431-458. 1913.
8. Simons, H. Ueber Selenomonas palpitans n.sp. Centr. Bakt. Parasitenk., Abt. 1, Orig., 87:50. 1921.
9. Simons, H. Eine saprophytische Oscillarie im Darm des Meerschweinchens. Centr. Bakt. Parasitenk. Abt. 2. 50:356-368. 1920.

IN

Volur

T
calle
Comm
stand
the v
name
tagio
organ
appli
orde
1.

2.

3.

4.
5.
6.
7.
8.

B
publi
later
1908
at le
(Smi
state
"If it
of pl
fel w
the l
be di

INTERNATIONAL BULLETIN OF BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY
Volume 5 January 15, 1955 No. 1 pp. 13-20

THE STATUS AND SYNONYMY OF THE BACTERIAL GENERIC NAME ASTEROCOCCUS

Editorial Board

Preliminary Statement

The nomenclature of microorganisms placed in the so-called "pleuropneumonia group" is confused. The Judicial Commission has been requested to contribute to an understanding of the nomenclature by giving an Opinion relative to the validity of publication and the legitimacy of the several names that have been applied to the etiologic agent of contagious bovine pleuropneumonia (peripneumonia), the first organism to be described in this group. The following names, applied to this and related species, will be considered in order.

1. Asterococcus mycoides Borrel, Dujardin-Beaumetz, Jeantet and Jouan 1910 (1)
2. Coccobacillus mycoides peripneumoniae Martzinovski 1911 (2)
3. Micromyces peripneumoniae bovis contagiosae Frosch 1923 (3)
4. Mycoplasma peripneumoniae Nowak 1929 (4)
5. Asteromyces peripneumoniae bovis Wroblewski 1931 (5)
6. (Anulomyces agalaxiae Wroblewski 1931) (5)
7. Borrelomyces peripneumoniae Turner 1935 (6)
8. Bovimyces pleuropneumoniae Sabin 1941 (7)

1. Asterococcus mycoides Borrel, Dujardin-Beaumetz, Jeantet and Jouan 1910

Both the generic name and the species name were validly published. However, the generic name Asterococcus is a later homonym of the algal genus Asterococcus Scherffel 1908 (8). In algology the genus is commonly recognized and at least two species are known to occur in the United States (Smith 1933 (9)). Rule 24 (par. 4) of the Bacteriological Code states that the name of a taxonomic group is illegitimate "If it is a later homonym of a genus of bacteria, of a genus of plants, or of a genus of protozoa." Asterococcus Scherffel was published in 1908, Asterococcus Borrel et al. in 1910; the latter generic name is therefore illegitimate and must be discarded.

2. Coccobacillus mycoides peripneumoniae Martzinovski 1911

This species name is not a binary combination (Rule 6), but has two specific epithets; it is illegitimate. The ascription of the organism to the genus Coccobacillus is certainly incorrect. Apparently the generic name Coccobacillus was first used by Gamaleia (10) in 1888 in Coccobacillus avicidus, an organism earlier (in 1887) placed by Trevisan (11) in his genus Pasteurella, hence a later synonym. It has been used repeatedly as a generic name for various organisms. It is poorly defined. As a later synonym for the name of the genus including the cause of bovine pleuropneumonia, Coccobacillus is illegitimate. Because of confusion that has attended its varied use it probably should be placed in the list of nomina generum rejicienda.

Martzinovski notes the name Asterococcus Borrel et al., but does not discuss nomenclature. The last paragraph of his article reads:

"Ainsi, l'étude du microbe se la péripneumonie, dans les tissus de l'organisme infecté et dans les cultures, nous permet de ranger le microbe de Nocard et Roux dans le groupe des coccobacilles, de sorte le nom de coccobacillus mycoides peripneumoniae lui conviendrait parfaitement, car il indique toutes les propriétés de ce microbe singulier."

3. Micromyces peripneumoniae bovis contagiosae Frosch 1923

The generic name Micromyces as proposed by Frosch is a later homonym of two validly published earlier generic names and hence illegitimate. The first proposal of Micromyces by Dangeard (12) in 1889 (p.55) related to a fungus belonging to the Chytridiaceae and parasitic upon species of the algal genus Zygogonium. The single species described was Micromyces zygogonii. Micromyces was later used by Grüber (13) in 1891 as the generic name of an organism (M. hoffmanni) apparently closely related to Actinomyces. Frosch gives the following explanation of the source of the name. "Unter weiterer Berücksichtigung der früher erwähnten eigentümlichen Festigkeit der Kolonien, ihrer starken kohärenz am Nährboden, die sie mit pathogenen Hefearten Teilen, möchte ich den Erreger der Lungenseuche demnach zu den Sproszpilzen rechnen und ihn, nach dem Vorschlage meines Kollegen Prof. K. Neumann "Micromyces peripneumoniae bovis contag (sic)" benennen."

It is not entirely clear whether Frosch intended to name a new genus or whether he was placing his organism in Grüber's genus Micromyces.

4. Mycoplasma peripneumoniae Nowak 1929

Nowak reviewed the literature, noted the older generic name Asterococcus Borrel et al., the ascription of the organism to the genus Coccobacillus by Martzinovski, and Frosch's use of the generic name Mycromyces (sic). He described and illustrated the organism under study. He did not enter into any discussion of nomenclature, but in the last paragraph of his "Conclusions" proposes a new name in the following statement. "Le terme Mycoplasma peripneumoniae semble répondre le mieux à la nature et à la morphologie du microbe." The specific epithet peripneumoniae is illegitimate, it should be replaced by mycoides which has priority.

The generic name Mycoplasma was validly published. The older generic names Asterococcus, Coccobacillus, and Micromyces are unavailable. As next in priority sequence Mycoplasma apparently is, therefore, the legitimate name of the genus. It is unfortunate that it resembles the morphological designation mycoplasm once used in mycology.

It should be noted that subsequent authors apparently have not adopted this generic name, the later Borrelomyces is more commonly accepted. However, unless some later name is conserved by international action, Mycoplasma probably should be recognized as correct.

5. Asteromyces peripneumoniae bovis Wroblewski 1931

Wroblewski (5) reviewed the several contributions relative to bovine peripneumonia and noted the species names applied by previous authors and the reasons why these authors considered their names suitable (Asterococcus Borrel et al., Micromyces Frosch, Mycoplasma Nowak). None of these names was regarded as appropriate by Wroblewski. He made the concluding statement: "En conséquence je considère le nom Asteromyces peripneumoniae bovis comme le mieux adapté à ce germe."

The generic name and the species names were apparently intended to be replacements of earlier names. They seem to have been validly published.

The species name is illegitimate because of the use of the specific epithet peripneumoniae bovis instead of mycoides which has priority.

The legitimacy of the generic name Asteromyces is determined by the legitimacy of generic names previously proposed. It would seem to be a later synonym of Mycoplasma Nowak, and illegitimate, unless Mycoplasma should be suppressed through international agreement.

6. Anulomyces agalaxiae Wroblewski 1931

Wroblewski also discussed the etiology of contagious agalactia of goats and sheep. The author proposed a new generic name and a new species in the following statement: "Les traits les plus caractéristiques du microbe de l'agalaxie contagieuse sont ces anneaux du mycelium, et c'est pour cette raison que je considère que le nom Anulomyces agalaxiae des moutons et des chèvres lui convient le mieux."

The names seem to have been adequately published. The preferable spelling of the specific epithet is agalactiae rather than agalaxiae. If the organism causing contagious agalactia is to be placed in a different genus from that of bovine peripneumonia, the generic name Anulomyces would probably be legitimate. If not so separated, it becomes a later synonym.

7. Borrelomyces peripneumoniae Turner 1935

Turner discussed at some length systematic position and nomenclature. He discarded the first generic name proposed as inappropriate in the statement "Nocard and Roux's Asterococcus rests upon an incorrect interpretation that the disc-like bodies are coccal in nature, and may thus be discarded." (Note. Turner's citation of Nocard and Roux apparently is a lapsus linguae, it should have been to Borrel et al.) He gave his fundamental nomenclatural point of view in the sentence: "It is very difficult to form a sufficiently descriptive name that has not already been used or proposed for some other organism." He observed the old biological rule that later homonyms are illegitimate, but did not include priority in synonymy as a basis for selection of names. Apparently, Turner conceived scientific name-giving as the search for appropriateness. He discarded Asteromyces of Wroblewski,

as well as his Annulomyces (sic). He attributed Mycoplasma to Ørskov (not Nowak) and discarded it. He states, "Frosch's Micromyces gives no clue to the main peculiarities of the organism." After discarding all previous names, he proposed the new generic name Borrelomyces to "perpetuate the name of Borrel, who with his colleagues first demonstrated its characteristic morphology." He included two species. The first, the cause of "pleuropneumonia contagiosa boum," Borrelomyces peripneumoniae, has an illegitimate specific epithet. The original designation of Borrel et al., B. mycoides, should have been accepted. The second species was B. agalactiae the "causal organism of agalactia contagiosa caprarum.

Borrelomyces is a later synonym of other generic names having priority, and hence illegitimate unless there is international approval of its conservation.

8. Bovimyces pleuropneumoniae Sabin 1941

Sabin proposed a taxonomy and nomenclature of organisms belonging to the "pleuropneumonia group" which quite effectively ignored previous names and classifications. He noted that Borrel and co-workers "proposed" the name Asterococcus mycoides because appropriate to the peculiar morphology of the organism. He in turn introduced the new name Bovimyces pleuropneumoniae for the causal organism of bovine pleuropneumonia. The specific epithet pleuropneumoniae is illegitimate. The original specific epithet should have been used, and the organism termed B. mycoides. This author quite disregarded synonymy. He introduced a number of generic names, one for each genus of animals in which pleuropneumonia-like organisms had been observed. Such names are Bovimyces, Capromyces, Canomyces, etc. The name Bovimyces probably was validly published. However, it is illegitimate as a later synonym of other generic names having priority. Sabin objected to Turner's proposal of an ordinal name Borrelomycetales because of the existence in the family Spirochaetaceae of a genus Borrelia. He does not mention Turner's proposal of the generic name Borrelomyces which clearly has priority over Bovimyces

It is an interesting commentary to note that of a series of five authors who proposed generic names to replace the first name published (Asterococcus) not one suggested any reason for the introduction of a new name other than that it seemed more appropriate. None made any point of priority. It may be regarded as unfortunate that the generic name first proposed, Asterococcus, is now found to be a later homonym and hence illegitimate. The name Asterococcus mycoides was deliberately chosen and some detail given as to why the authors considered the name appropriate and descriptive of the morphology of the species.

It is concluded above that Mycoplasma is the first validly published legitimate generic name applied to the organism of bovine peripneumonia. However, as previously noted, the name Mycoplasma has apparently been ignored by microbiologists and has not been used by later authors. Among the other proposals of generic names Turner's Borrelomyces is the only one which has found any general acceptance; its replacement by Mycoplasma might be a source of confusion, perhaps undesirable.

An Opinion has been requested. To make an end to the uncertainty it is suggested that those interested make a study of the two draft proposals given below, and send comments, for publication if desired.

Draft Proposal for an Opinion. Alternative 1.

a. The generic name Asterococcus Borrel, Dujardin-Beaumetz, Jeantet and Jouan 1910 is a later homonym of Asterococcus Scherffel 1908, and hence illegitimate.

b. The generic name Mycoplasma Nowak, 1929 is placed in the list of bacterial nomina generum conservanda as the first legitimate generic name proposed to replace Asterococcus. The type species is determined by the basonym Asterococcus mycoides Borrel et al.

Draft Proposal for an Opinion. Alternative 2.

a. The generic name Asterococcus Borrel, Dujardin-Beaumetz, Jeantet and Jouan 1910 is a later homonym of Asterococcus Scherffel 1908, and hence illegitimate.

b. With the exception of Borrelomyces Turner none of the generic names proposed to replace Asterococcus Borrel et al. has found general usage by bacteriologists. To avoid confusion, the generic name Borrelomyces Turner 1935 is conserved against all earlier synonyms, and placed in the list of nomina generum conservanda. The type species is determined by the basonym Asterococcus mycoides Borrel et al.

REFERENCES

1. Borrel, Dujardin-Beaumetz, Jeantet and Jouan. Le microbe de las peripneumonie. Ann. Inst. Past. 24:168. 1910.
2. Martzinovski, E.J. De l'etiologie de la péripneumonie. Ann. Inst. Past. 25:914-917. 1911.
3. Frosch, P. Zur Morphologie des Lungenseucheerregers. II. Mit. Arch. wiss. u prakt. Tierheilkunde 49:273-282. 1923.
4. Nowak, Julien. Morphologie, nature et cycle évolutif du microbe de la péripneumonie des bovides. Ann. Inst. Past. 43:1330-1352. 1929.
5. Wroblewski, W. Morphologie et cycle évolutif des microbes de la péripneumonie des bovides et de l'agalaxie contagieuse des chevres et des moutons. Ann. Inst. Past. 47:94-116. 1931.
6. Turner, A.W. A study of the morphology and life cycles of the organism of pleuropneumonia contagiosa boum (Borrelomyces peripneumoniae nov. gen.) by observation in the living state under dark-ground illumination. Jour. Path. Bact. 41:1-32. 1935.
7. Sabin, Albert B. The filtrable microorganisms of the pleuropneumonia group. Bact. Rev. 5:1-68. 1941.
8. Scherffel, A. Asterococcus n.g. superbus (Cienk.) Scherffel and dessen angebliche Bezeichnungen zu Eremosphaera. Ber. deutsch. bot. Ges. 26A:762-771. 1908.
9. Smith, G.B. The Freshwater Algae of the United States. p. 356. ed. 1. New York and London. 1933.
10. Gamalia, N. Zur Aetiologie der Hühnercholera. Centr. f. Bakt. 4:167. 1888.

11. Trevisan, V. Caratteri di alcuni nuovo generi di Bateriacee. Reale Instituto Lombardo de Science e Letter. Rendiconti. Piso. p. 94.
12. Dangeard, P. A. Memoire sur les Chytridinées. Le Botaniste 4:39-74. 1889.
13. Grüber, M. Micromyces hoffmanni. Centr. f. Bakt. 10: 648. 1891.

INTERNATIONAL BULLETIN OF BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY
Volume 5 January 15, 1955 No. 1 pp. 21-26

STATUS OF GENERIC NAMES PUBLISHED WITHOUT NAMES OF INCLUDED SPECIES

Judicial Commission

Preliminary Statement

A request from Lessel and Breed (1) for an Opinion relative to the status of the generic name Selenomonas von Prowazek raised two questions. A preliminary statement relative to the legitimacy of this name is published in this Bulletin (2). The second question raised, but not discussed, is:- What is the status of a generic name proposed and published in which the author failed to give any species name, neither the name of a new species nor a new combination required by transference of some previously named species to the new genus? The problem is not adequately dealt with either in the Bacteriological Code or in the Botanical Code to cover all cases. There are enough examples of difficulties to be found in publications in systematic bacteriology to justify study and development of proposals for solution.

An author may describe a genus, give to it a generic name, yet fail to give a species name in which the generic name proposed is combined with a specific epithet. If validly published, is such a generic name illegitimate because of the failure to use the proposed generic name in the name of a species? Several classes of cases are to be distinguished, some are covered by provisions of the Bacteriological Code, for others there seems to be no definite rule or even recommendation. These classes of cases should be defined and appropriate methods for treatment explored.

1. Names of hypothetical genera. There have been cases in biology in which a generic name is proposed for an undiscovered group of organisms whose existence is merely postulated. For example, Fischer (3) proposed Clostrillum as a generic name for rod-shaped bacteria that produce spores in spindle-shaped cells and are motile by means of a tuft of polar flagella. He stated "Bix jetzt keine Art Bekannt." Apparently no such organism has been discovered. Similarly he proposed Clostrinium for rods spindle-shaped when sporulating and with single polar flagella. No species was known to the author. Such names are hyponyms or nomina dubia. They seem to fall under Rule 24 (paragraph 6) of the

Bacteriological Code and are to be placed in the list of nomina rejicienda.

2. Names for "temporary" genera. There have been several instances in which authors have published generic names to be used for species insufficiently well characterized to be placed definitely in any recognized genus of bacteria. Kendall (4) proposed the name Bacterius to include those motile, rod-shaped bacteria on which the distribution of flagella is unknown. No species were named. The author stated that the need for this generic name would disappear as flagellation was more accurately known. Apparently no species has been assigned to the genus. It likewise is a nomen dubium and illegitimate.

A quite different approach was proposed by Breed and Conn (5), that the generic name Bacterium be reserved for non-sporulating, rod-shaped bacteria whose position in the classification is not definitely established. In this case, unlike the proposal of Kendall, there were numerous species recognized as remaining in the genus. In the sixth edition of Bergey's Manual there are 56 species listed and described. However, it should be noted that the Manual actually recognizes in this genus only those species for which the generic name Bacterium has been employed by other authors, usually by the author who first proposed the species. In other words, in practice, it has meant not only in Bacterium, but in other genera as well, the listing of species incertae sedis under the generic name of earlier authors, and not the renaming of species. However, in a few cases it has encouraged authors to publish inadequate descriptions of new species, placing them in the genus Bacterium as a makeshift. For example, Bernoulli and Muspach (6) named an organism Bacterium rauricum "mit der Einschränkung, dass, wenn einmal die Systematik der Mikroben eindeutiger festgelegt sein wird, der Gattungsname vielleicht geändert werden musste."

3. Names in generic form which are given to single species with no specific epithet given or available. In some cases an author has described a species and applied to it a name having the form of a generic name but without use with a specific epithet. If intended merely as the name of a species, it constitutes a unitary rather than the Linnaean binary

name of a species and is illegitimate. Or it is to be regarded as a generic name given to a monotypic genus without a name being given to the species described. For example, Winogradsky (7) names the organism which oxidizes nitrites to nitrates in the following words: "Le ferment nitrique porterait le nom de Nitrobacter." In the preceding sentences he definitely designated Nitrosomonas and Nitrosococcus as genera, the former with two named species and the latter with none. Evidently Winogradsky regarded Nitrobacter also as a generic name. But he did not give a species name; apparently specific epithets were regarded as needed only when two or more species needed to be distinguished. Lehmann and Neumann (8) gave to the species its first binomial name, Bacterium nitrobacter. If the generic name proposed by Winogradsky is accepted, the binomial would be Nitrobacter nitrobacter. This name would be illegitimate as the specific epithet nitrobacter would be a tautonym. The Committee on Characterization and Classification of Bacterial Types, C. E. A. Winslow, Chairman (9), proposed the species name Nitrobacter winogradskyi. Both generic and species names have come into use and are commonly accepted. Should such names be regarded as legitimate?

If a proposed generic name has the characteristics just enumerated it may be wise for the Judicial Commission to place such name in the list of nomina generum conservanda. Such name should have been definitely proposed for a genus. At least one (preferably one only) species should have been described but not named. The species (or one of the species) should have been given a specific epithet by a later author who accepted the generic name. Generic names so proposed which do not meet the conditions of later acceptance might well be suppressed and placed in the list of genera rejicienda.

4. Names of genera proposed to include previously described named species but without simultaneous publication of new species names or new combinations. Names of genera have in some cases been published with no new species named, with citation to previously described species which the author indicates are to be placed in the new genus, and without publication of the resultant new combination. Von Prowazek (10) published a description of a new genus and proposed for it the name Selenomonas. He included illustrations of the species he observed but did not name. He cited by name two

other species of bacteria named by previous authors, the first, the Spirillum sputigenum of Flügge. He did not spell out the new combination Selenomonas sputigena. Did this failure to give the new species combination make illegitimate his proposed name? It would seem reasonable to regard the definite designation of a basonym as warrant for ascribing to the author the appropriate combination.

The Bacteriological Code should be examined to determine the legitimacy as well as the validity of publication of generic names of the types discussed above. The following statements appear to be justified.

1. There is no direct statement in the Bacteriological Code that specifies clearly that publication of a generic name which neither has one or more newly described named species nor refers to named species to be transferred from other genera does or does not constitute valid publication, or that the generic name is or is not legitimate in consequence.

2. In several places in the Code there is the tacit assumption that a generic name to be legitimate must be applied to a genus recognized by its author as containing a species. Among such indications are the following. Principle 7 (a) notes that of the categories of successive rank the species is "the basic one" and that the next higher category above species is the genus. Rule 9 requires that for each taxon a nomenclatural type shall be designated, such nomenclatural type of a genus obviously must be the name of a contained species. Further there is the requirement that the nomenclatural type of a genus must be one of the species included when the name of the genus was first published. Rules 11, 12, and 13 list the criteria to be used in determining the valid publication of the name of a taxon and Rule 24 lists the conditions under which the name of a taxon is illegitimate. In no case is there any statement that the name of a genus is illegitimate if when published no named species are identifiable.

It seems advisable that draft proposals for Opinions be prepared for discussion by all interested or concerned, and for final consideration by the Judicial Commission. The Opinions, if finally formulated and approved, should clarify appropriate procedures for handling nomenclatural problems of the kinds considered above. Comment and criticism rela-

tive to the draft proposals herewith presented will be welcomed. Pertinent discussion will be published.

Draft Proposal (No. 1) for an Opinion. Status of the name of a hypothetical genus. Names have been proposed for hypothetical genera. A hypothetical genus is one for which no species is described, named or cited, the existence of the genus is predicated upon the future discovery and description of species still unknown. A name applied to such hypothetical genus is a hyponym. It is illegitimate and may be placed in the list of nomina rejicienda.

Draft Proposal (No. 2) for an Opinion. Status of a name applied to a "temporary" genus. A generic name proposed for a genus whose sole function is to serve as the temporary generic haven for species insufficiently described to be allocated later to an appropriate genus is to be regarded as not validly published. Such a name is illegitimate and may be placed in the list of nomina rejicienda.

Draft Proposal (No. 3) for an Opinion. Status of a generic name applied to a genus with a described species which is not named or identified by citation. A published generic name used in a combined description of a genus and species, without the species being named, without citation of a previously and effectively published description of the species, and without subsequent acceptance of the generic name and naming of the species by a later author, should be regarded as not validly published and hence illegitimate. Such a generic name may be placed in the list of nomina rejicienda.

However, if a later author has recognized the generic name and has used it with a specific epithet in naming the species described by the first author, particularly if there has been later general acceptance of the name, there may be validation of the generic name as proposed by its author, with the name of the species ascribed to the later author who gave it. Proposals for such validations of names should be made to the Judicial Commission for appropriate action.

Draft Proposal (No. 4) for an Opinion. Status of a generic name applied to a genus with described species which are not named but are identified by adequate citation. A published generic name applied to a genus in which the generic name is not used with a specific epithet in naming any species, but in which there is citation of a previously and effectively published description of a species under another name, is to be regarded as validly published and the consequent combinationes novae ascribed likewise to the author of the generic name.

REFERENCES

1. Lessel, F. Jr., and R.S. Breed. Selenomonas Boskamp 1922. A genus which includes species showing an unusual type of flagellation. Bact. Revs. 18:165-167. 1954.
2. Editorial Board. Status of the generic name Selenomonas von Prowazek. Int. Bull. Bact. Nom. and Tax. 5:7-10. 1955.
3. Fischer, Alfred. Untersuchungen über Bakterien. Jahr. f. wiss. Bot. 27:1-163 (p. 139). 1895.
4. Kendall, A.I. A proposed classification and method of graphical tabulation of the characters of bacteria. Public Health 28:484. 1902.
5. Breed, R.S., and H.J. Conn. The status of the generic term Bacterium Ehrenberg 1828. Jour. Bact. 31:517-518. 1936.
6. Bernouilli, René and Gertrud Muspach-Siebenhaar. Ein obligat halophiler Keim in schweizer Kochsalz. Schweiz. Zeitscher. f. Path. u. Bakt. 11:482-489. 1948.
7. Winogradsky, S. Contributions à la morphologie des organismes de la nitrification. Arch. d. Sc. Biol. St. Petersbourg, p. 87. 1892.
8. Lehmann, K.B., and R.O. Neumann. Atlas und Grundriss der Bakteriologie. Teil II. Text. p. 187. Munich. 1899.
9. Committee of the Society of American Bacteriologists on Characterization and Classification of Bacterial Types. C. E. A. Winslow, Chairman. Preliminary Report. The families and genera of the Bacteria. Jour. Bact. 2:505-566. 1917.
10. von Prowazek, S. Zur Parasitologie von Westafrika. Centr. Bakt. Parasitenk. Abt. 1, Orig. 70:32-36. 1913.

INTERNATIONAL BULLETIN OF BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY
Volume 5 January 15, 1955 No. 1 pp. 27-31

STATUS OF THE GENERIC NAMES NITROMONAS, NITROSOMONAS, NITROSOCOCCUS AND NITROBACTER

Editorial Board

Preliminary Statement

Winogradsky, in his pioneer work on the bacteria which oxidize ammonia or nitrites, proposed four generic names. One he later discarded (Nitromonas). In one genus he described and named two species (Nitrosomonas), and in each of two genera (Nitrobacter and Nitrosococcus) one species was described but not named. Later authors named species in the genera Nitrobacter and Nitrosococcus. The validity of publication and consequent legitimacy of some of the generic names has been questioned. The correct names of the species unnamed by Winogradsky but later named by other writers has been debated. An Opinion has been asked relative to the status of the several generic names.

Nitromonas Winogradsky 1890 (1, p. 258)

This author described under the generic name Nitromonas a nitrifying organism which oxidized ammonia and required no organic matter for growth. He found the decompositions of organic matter so characteristic of the growth of most bacteria "sont remplacés chez le ferment nitrique par une action purement et simplement oxydante, spécialement adaptée à l'oxydation de l'ammoniaque, qui lui fournit toute l'énergie nécessaire au travail de sa vie." He states that the morphological characters such as elongated cells might place the organism in the genus Bacillus, then adds "ce ne serait pas correct au point de vue botanique, et je lui donne, puisqu'il faut le nommer, le nom générique de Nitromonas."

Winogradsky (2, p. 127) two years later, in a discussion of soil organisms which oxidize ammonia to nitrites, proposed two new generic names Nitrosomonas and Nitrosococcus, the former "au lieu de Nitromonas, que j'ai propose avant." The generic name Nitromonas has not been commonly accepted by later authors. The species described were not named. In proposing his revised nomenclature of 1892 Winogradsky apparently decided to use the stem nitro- in formation of names of genera of bacteria producing nitrates and nitros- for names of genera of bacteria forming nitrites.

The generic name Nitromonas was later independently proposed by Orla-Jensen (3) for bacteria oxidizing nitrites to nitrates. It was intended to replace the generic name Nitrobacter Winogradsky 1892.

A draft proposal for an Opinion is presented herewith to designate Nitromonas Winogradsky as a nomen dubium because no binomial name was given to the species described and because the name was later discarded by the author and has not been accepted and used by later authors. It may be placed in the list of nomina generum rejicienda.

The generic names Nitromonas Orla-Jensen is a later homonym of Nitromonas Winogradsky. It is also a later synonym of Nitrobacter Winogradsky.

Nitrosomonas Winogradsky 1892 (2, p. 127)

The author proposed the generic name Nitrosomonas to replace the earlier generic name Nitromonas Winogradsky. He described and named two species, N. europaea and N. javanensis. The genus included rod-shaped bacteria which oxidize ammonia to nitrites, and was differentiated from the genus Nitrosococcus described at the same time on the basis of morphology. The type species was designated by Winslow et al. (4) as N. europaea. The generic name has found wide acceptance. If the earlier name Nitromonas is rejected, it is apparently legitimate. It may be well to place Nitrosomonas in the list of nomina generum conservanda.

Nitrosococcus Winogradsky 1892 (4, p. 127)

This generic name was proposed by the author to include the "new world" spherical bacteria which form nitrites from ammonia, differentiated morphologically from the "old world" Nitrosomonas. One species was described but not named. The species was again recognized and named Micrococcus nitrosus by Migula (5, p. 194). Buchanan (6, p. 180) overlooked the name given by Migula and proposed the species name Nitrosococcus americanus. This author (7, p. 402) later noted the name applied by Migula and proposed the Nitrosococcus nitrosus (Migula) comb. nov. Somewhat later in the same year Bergey et al. (8, p. 85) independently made the same proposal.

The failure of Winogradsky to name or designate a species

belonging to the genus Nitrosococcus would seem to establish the generic name as a nomen dubium and require its inclusion in the list of nomina generum rejicienda. However, the generic name is in general use and the specific name given to Winogradsky's species by later authors is commonly accepted. It is proposed that a draft Opinion be formulated which would place Nitrosococcus Winogradsky 1892 in the list of nomina generum conservanda with the name Nitrosococcus nitrosus (Migula) Buchanan applied subsequently to Winogradsky's species as the nomenclatural type.

Nitrobacter Winogradsky 1892 (2, p. 127)

This generic name was proposed for a species which transforms nitrites to nitrates. The statement reads: "Les microbe nitreux du nouveau monde feraient le genre Nitrosococcus. Le ferment nitrique porterait le nom de Nitrobacter." The context seems to make clear that the author intended that Nitrobacter be recognized as a generic name and not as the unitary name of a species. He described a new species, but gave it no name.

Lehmann and Neumann (9, p. 187) in 1899 described the species and named it Bacterium nitrobacter (Winogradsky) Lehmann and Neumann. Use of the generic name Nitrobacter as a specific epithet would make the species name Nitrobacter nitrobacter (Migula) comb. nov. But under Rule 25 of the Bacteriological Code (the same rule is to be found in the Botanical Code) a specific epithet is illegitimate (as a tautonym) when it exactly repeats the generic name.

Beijerinck (10) in 1914 proposed two names for so-called "physiological species, "Nitrobacter oligotrophum and N. polytrophum. He enumerates the organisms regularly present in nitratation in Delft soils, and for the first group states: "Nitrobacter oligotrophum ... Nitrobacter polytrophum, das Nitratferment selbst: Im nitratierenden, meist unbeweglichen Zustand als N. oligotrophum, im saprophytischen oft beweglichen nicht nitratierenden Zustand, als N. polytrophum zu bezeichnen. Die beiden Formen müssen als physiologische Arten bezeichnet werden und verhalten sich zu einander als Modifikationen and nicht als Mutationen."

Buchanan (7, p. 399) suggested that, as Nitrobacter oligotrophum Beijerinck was the first usable binomial for a species in the genus, this be accepted as the nomenclatural type

of the genus. Bergey et al., probably correctly, did not regard this name as applicable to Winogradsky's species, it could not therefore constitute the nomenclatural type.

Winslow et al. (4, p. 552) recognized the lack of a legitimate name for Winogradsky's species and proposed Nitrobacter winogradskyi as the nomenclatural type of the genus. This recommendation has had general acceptance.

The genus Nitrobacter may be regarded as not validly published and hence illegitimate because the author named no species. He did, however, describe a species which was subsequently named. Both generic and specific names are commonly accepted. It is proposed that a draft proposal be developed for an Opinion which would validate the generic name and fix the type species.

The following draft proposals are submitted for suggestions and criticism. Pertinent discussion will be published.

Draft Proposal (No. 1) for an Opinion. The generic name Nitromonas Winogradsky 1890 is placed in the list of nomina generum rejicienda.

Draft Proposal (No. 2) for an Opinion. The generic name Nitromonas Orla-Jensen 1909 is a later homonym of Nitromonas Winogradsky and a later synonym of Nitrobacter Winogradsky. It is placed in the list of nomina generum rejicienda.

Draft Proposal (No. 3) for an Opinion. The generic name Nitrosomonas Winogradsky 1892 is placed in the list of nomina generum conservanda with Nitrosomonas europaea Winogradsky as the nomenclatural type species.

Draft Proposal (No. 4) for an Opinion. The generic name Nitrosococcus Winogradsky 1892 is placed in the list of nomina generum conservanda, with the species described by Winogradsky and later named Nitrosococcus nitrosus (Migula) Buchanan as the nomenclatural type.

Draft Proposal (No. 5) for an Opinion. The generic name Nitrobacter Winogradsky 1892 is placed in the list of nomina generum conservanda, with the species described by Winogradsky and later named Nitrobacter winogradski Winslow et al. as the nomenclatural type.

REFERENCES

1. Winogradsky, S. Recherches sur les organismes de la nitrification. 2nd Mem. Ann. de l'Inst. Past. 4:257-275. 1890.
2. Winogradsky, S. Contributions à la morphologie des organismes de la nitrification. Arch. d. Sc. Biol. St. Pétersbourg. 1892.
3. Orla-Jensen, S. Die Hauptlinien des natürlichen Bakteriensystems. Centr. f. Bakt. Par. u. Inf. Abt. 2. 22: 305-346. 1909.
4. Winslow, C. E. A., Jean Broadhurst, R. E. Buchanan, Chas. Krumwide, L.A. Rogers and G.H. Smith. (Committee on Characterization and Classification of Bacterial Types, Society of American Bacteriologists.) Preliminary Report. The families and genera of bacteria. Jour. Bact. 2:552. 1917.
5. Migula, W. System der Bakterien. Bd. 2. Specielle Systematik der Bakterien. 1900.
6. Buchanan, R.E. Studies in the nomenclature and classification of the bacteria. VI. Subdivisions and genera of the Spirillaceae and Nitrobacteriaceae. Jour. Bact. 3:175-300. 1918.
7. Buchanan, R.E. General Systematic Bacteriology. Williams and Wilkins, January, 1925.
8. Bergey, D.H. et al. Bergey's Manual of Determinative Bacteriology. Ed. 2. 1925.
9. Lehmann, K.B., and R.O. Neumann. Atlas und Grundriss der Bakteriologie. Teil II. Text. Munich. 1899.
10. Beijerinck, M. W. Ueber das Nitratferment und ueber physiologische Artbildung. Folia microbiol. Delft. 3: 91-113. 1914.

INTERNATIONAL BULLETIN OF BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY
Volume 5 January 15, 1955 No. 1 pp. 33-52

MEMBERSHIP OF COMMITTEES, COMMISSIONS, AND SUBCOMMITTEES 1955

INTERNATIONAL COMMITTEE ON BACTERIOLOGICAL NOMENCLATURE

Provision 4 of the International Bacteriological Code of Nomenclature established a permanent International Committee on Bacteriological Nomenclature "so constituted that wherever practicable each country is represented by at least one member and no country by more than five. Nominations for membership are made preferably by one or more of the microbiological societies in each country."

The Permanent Secretaries will be grateful for information relative to any inaccuracies.

Officers

Chairman: MURRAY, E.G.D. - Dept. of Bacteriology and Immunology, McGill University, Montreal, Canada.

Vice-Chairman: VARTIOVAARA, J. Unto - Université de Helsinki, Helsinki, Finland.

Permanent Secretary for Medical and Veterinary Bacteriology
COWAN, Dr. S.T. - National Collection of Type Cultures, Central Public Health Laboratory, Colindale, Avenue, London N.W.9, England

Permanent Secretary for Nonmedical Bacteriology:
WIKEN, Prof. Torsten - Inst. f. Bakteriologie u. Gärungsbiologie., Eidgenoss. Techn. Hochschule, Universitätstrasse 2, Zürich 6, Switzerland.

Life Members

ST. JOHN-BROOKS, Dr. Ralph - Department of Bacteriology, Trinity College, Dublin, Ireland.
BREED, Prof. R.S. - 6 Sunset Drive, Geneva, New York, U.S.A.

Members of Committee

ARGENTINA

SORDELLI, Prof. A. - Posodas 1553, Martinez F.C.N.G. B.N., Buenos Aires.
SORIANO, Prof. Ing. Santos,- Instituto de Microbiologia Agricola, Villa Orturar-Suc. 17, Buenos Aires.

AUSTRALIA

MUNCH-PETERSON, Dr. E. - Div. Animal Health and Nutrition, Flemington Road and Park Street, Parkville, N.2, Victoria,
RUBBO, Prof. S.D. - Department of Bacteriology, The University, Melbourne, Victoria.
SKERMAN, Prof. V.B.D. - Department of Bacteriology, Medical School, Queensland University, Herston Road, Brisbane, Queensland.

AUSTRIA

EISLER-TERRAMARE, Prof. Michael.- Staatl. Serotherapeut. Institut, Universität, Vienna 10.
JANKE, Prof. Alexander - Technische Hochschule, Waldeckgasse 3, Wien XVIII 110.
SZYLVINI, Prof. Ing. - Institut für angewandte Mikrobiologie, Hochschule für Bodenkultur, Michaelstr. 25, Vienna 18.
ZISCHKA, Dr. R.L. - Pathol. Anatomisches Institut. Spitalgasse 4, Vienna.

BELGIUM

BRUYNOGHE, Prof. Richard.- Department of Bacteriology, University of Louvain.
RENAUX, Prof. Ernest.- Faculté de Médicine et de Pharmacie, Université Libre de Bruxelles, 115 Boulevard de Waterloo, Brussels.

BRAZIL

BITANCOURT, Dr. Agesilau.- Instituto Biologico, Caixa Postal 7119 São Paulo, Estado de São Paulo.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

CRUZ, Dr. Oswaldo, filho.- Instituto Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro, D.F.

DA ROCHA LAGOA, Dr. Francisco de Paulo.- Instituto Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro, D.F.

PENHA, Dr. Adolpho Martins.- Instituto Biologico, Caixa Postal 7119 São Paulo (Estado de São Paulo).

PENIDA, Dr. J.C.N. - Instituto Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro D.F.

BRITISH WEST INDIES

THAYSEN, Dr. A.C. - Director, Colonial Microbiological Institute, P.O. Box 584, Port-of-Spain, Trinidad

BULGARIA

MARKOFF, Prof. W. - Dept. of Bacteriology, University of Sofia, 3 Rue Dounau, Sofia.

PETROFF, Prof. T. - Department of Hygiene, University of Sofia, Sofia.

CANADA

LOCHHEAD, Dr. A.G. - Division of Bacteriology, Central Experimental Farm, Ottawa, Ontario.

MORIN, Prof. E.J. - Dept. of Bacteriology, Laval University, Quebec, P.Q.

MURRAY, Prof. E.G.D. - Dept. Bacteriology, McGill University, Montreal, P.Q.

REED, Prof. Guilford B. - Dept. Bacteriology, Medical School, Queens University, Kingston, Ontario.

VAN ROOYEN, Dr. C.E. - Connaught Laboratories, University of Toronto, Toronto 5, Ontario.

CHILE

GRAF-MARIN, Dr. Alberto - Professor of Agricultural Microbiology, Universidad de Chile, Casilla 370, Santiago.

SAN MIGUEL, Dr. Julio - Faculdad de Ciencias Pecuarias y Medicina Veterinaria, Universidad de Chile, Casilla 370, Santiago.

VACCARO, Dr. Hugo.- Instituto de Microbiologia e Imunologia, Casilla 370, Santiago.
WILHELM, Dr. Ottmat.- Professor, Universidad de Concepcion, Concepcion.

CZECHOSLOVAKIA

MALEK, Dr. Ivan. - Department of Bacteriology, University of Praha, Preslova 7, Praha.
RASKA, Dr. Karel.- State Institute of Public Health, Srobárova 48, Praha III.

DENMARK

BUCHWALD, Prof. Dr. N. Fabritius.- Kgl. Veterinaer og Landbohøjskole, Bülowsvej, Copenhagen.
CHRISTIANSEN, Prof. M. - Serum Lab., Veterinary School, Bülowsvej, Copenhagen.
KAUFFMANN, Dr. F. - Statens Seruminstitut, Amager Blvd. 80, Copenhagen S.
ØRSKOV, Dr. J. - Statens Seruminstitut, Amager Blvd. 80, Copenhagen S.

EIRE

GRIMES, Prof. Michael.- Dairy Institute, University of Cork, Cork.

FINLAND

GYLLENBERG, Dr. H.H.G. - Messeniuksenk. 7 A 18, Helsinki.
MUSTAKALLIO, Prof. E. - Institute of Bacteriology, Turku.
PENTTINEN, Dr. E. - Maurink. 4 A, Helsinki.
VARTIOVAARA, Dr. Unto.- Dept. of Microbiology, The University, Helsinki.

FRANCE

HAUDUROY= Prof. Paul.- Directeur du Centre de Collection de Types Microbiens, 19 Ave. César Roux, Lausanne, Switzerland.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

LEPINE, Dr. P. - Institut Pasteur, 25 Rue du Dr. Roux, Paris XVe.
LWOFF, Dr. A. - Institut Pasteur, 28 Rue du Dr. Roux, Paris XVe.
PREVOT, Dr. A.R. - Institut Pasteur, 25 Rue du Dr. Roux, Paris XVe.
SEGRETAIN, Dr. G. - Institut Pasteur, 25 Rue du Dr. Roux, Paris XVe.

GERMANY

HAUPT, Prof. Dr. Herbert.- Veterinärhygienisches Institut, Frankfurterstrasse 87, Giessen.
SEELEMANN, Prof. Dr. M. - Institut für Milchhygiene, Hermann Weigmannstr 3/11 Kiel.
SEELIGER, Dr. H. - Hygiene-Institut, Venusberg, Bonn.
STAPP, Prof. Dr. C. - Direktor Biologische Zentralanstalt, 20b Braunschweig-Gliesmarode. Messeweg 25.

GREAT BRITAIN AND NORTHERN IRELAND

ANDREWES, Dr. C.H. - National Institute for Medical Research, The Ridgeway, Mill Hill, London N.W. 7.
GIBSON, Dr. T. - College of Agriculture, 13 George Square, Edinburgh 8, Scotland.
MILES, Dr. A.A. - National Institute for Medical Research, The Ridgeway, Mill Hill, London N.W. 7.
RAMSBOTTOM, Dr. J. - British Museum (Natural History) Cromwell Road, London S.W. 7.
WILSON, Dr. G.S. - Public Health Laboratory Service, 38 Old Queen St., Westminster, London S.W. 1.

HUNGARY

MANNINGER, Prof. R. - Director, State Veterinary Hygienic Institute, Hungária Körut 23-26, Budapest XIV.

ISRAEL

ASCHNER, Dr. M. - Department of Bacteriology, Hebrew University, Jerusalem.

ITALY

ARNAUDI, Prof. Carlo.- Instituto di Microbiologia della Facoltà di Agraria, Università di Milano, Via Celaria, Milan.
CASTELLANI, Prof. Aldo.- Instituto de Medecina Tropical, Travessa do Franco, Lisboa, Portugal
CIFERRI, Prof. R. - Instituto Botanico, Università di Pavia, Via Scopoli, P.O. Box 165, Pavia.
DE ROSSI, Prof. Gino, - Via Buccari 3, Rome.
PENSO, Dr. G. - Instituto Superiore di Sanità, Viale Regina Margherita 299, Rome.

JAPAN

ASAI, Prof. Dr. Toshinobu.- Faculty of Agriculture, Univ. of Tokyo, Mukogaoka-Yayoimachi, Bunkyo-ku, Tokyo.
KOJIMA, Dr. Sabura.- Director of the National Institute of Health 1, Shiba-Shirokane-Daimachi, Minato-ku, Tokyo.
KOMINAMI, Dr. Kiyoshi.- Nagao Research Institute, 387, 6, Cho-me, Kitashinagawa, Shinagawa-ku, Tokyo.

NETHERLANDS

KLUYVER, Prof. Dr. A.J. - Technical High School, Nieuwe Laan 3, Delft.
RUYS, Prof. A.Charlotte.- Laboratory of Hygiene of Univ. of Amsterdam, Mauritskade 57, Amsterdam.
SMIT, Prof. Dr. Jan.- Université Agronomique, Wageningen.
VERLINDE, Prof. Dr. J.D. - Université de Leyden, Nederland Institut voor Praeventive Geneeskunde, Wassenaarschweg 56, Leyden.
WOLFF, Prof. Dr. J.W. - Konikluk Institut voor de Tropen, Amsterdam.

NEW ZEALAND

BUDDLE, M.B., (B.V.Sc.) - Wallaceville Animal Research Station, Private Bag, Wellington.
KIRSCHNER, Dr. L. - Medical School, University of Otago, Dunedin, Cl.
WHITEHEAD, Dr. H.R. - Dairy Research Institute, Massey College, Palmerston North.

NORWAY

HENRIKSEN, Dr. S. Dick - Statens Institutt for Folkehelse, Geitmyrsvegen 75, Oslo.
THJØTTA, Prof. Th. - Bacteriological Institute, University of Oslo, Oslo.
VOSS, Prof. J. - State Institutt for Folkehelse, Geitmeyrsvegen 75, Oslo.

POLAND

LEGEZYNSKI, Prof. St. - Department of Bacteriology, State Institute of Hygiene, Chocimska 28, Warsaw.
PRZESMYCKI, Prof. F. - State Institute of Hygiene, Chocimska 28, Warsaw.
SZYMANOSKI, Prof. Dr. F. - Dept. of Bacteriology, The University, Lodz.

PORTUGAL

OLIVEIRA, Prof. Candido de.- Instituto Bacteriológico Camara Pestana, Rua do Instituto Bacteriológico, Lisbon.

RUMANIA

IONESCU-MIHAIESTI, Prof. Dr. C. - Faculty of Medicine, Splaiul Dr. Carol Davilla 6, Bucharest VI.
ZOTTA, Prof. Dr. G. - Splaiul Dr. Carol Davilla 6, Bucharest VI.

SPAIN

FALCO, Dr. A. Ruiz.- Instituto Nacional de Hygiene, Madrid.

SWEDEN

GARD, Prof. Sven.- State Bacteriological Laboratory, Karolinska Institutet, Box 764, Stockholm 1.
HÜLPHERS, Prof. Gustav.- Dept. Bacteriology, Veterinary College, Stockholm.
NILSSON, Prof. R. - Kungl. Lantbrukshogskölan, Uppsala.

SWITZERLAND

FREI, Prof. W. - Veterinär-Pathologisches Institut, University of Zürich, Zürich.
GRASSET, Prof. Dr. E. - Institut d'Hygiene et de Bacteriologie de l'Université de Geneve. Geneve.
KÄSTLI, Prof. Dr. P. - Eidg. Milchwirtschaftliche u. Bakteriologische Versuchsanstalt, Liebefeld-Bern.
MOOSER, Prof. Dr. H. - Hygienisches Institut der Universität Zürich, Gloriastrasse 32, Zürich.
TERRIER, Dr. Ch. - Stations federales d'essais viticoles, Arboricoles et de chimie agricole, Montagibert Lausanne.

UNITED STATES OF AMERICA

ALLEN, Dr. Oscar N. - Department of Bacteriology, Univ. of Wisconsin, Madison 6, Wisconsin.
BROWN, Dr. J. Howard - 1640 Gorsuch Ave., Baltimore 18, Maryland.
BUCHANAN, Prof. R.E. - Room 316 Curtiss Hall, Iowa State College, Ames, Iowa.
VAN NIEL, Prof. C.B. - Hopkins Marine Station, Pacific Grove, California.

URUGUAY

HORMAECHE, Prof. E. - Instituto de Higiene, Faculdad de Medicina, Av. A. Ricaldoni, 3051, Montevideo.

U.S.S.R.

HOROWITZ-WLASSOWA, Prof. - 1 Linia, 54, App. 3, Leningrad 53, W.O.
ISSATCHENKO, Prof. Dr. B. - Institute of Experimental Medicine, 96 Baltiiskii poselok 13, Moscow 96.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

JUDICIAL COMMISSION OF THE INTERNATIONAL COMMITTEE

Provision 5 of the International Bacteriological Code of Nomenclature established a Judicial Commission to consist of fourteen members, twelve elected by the members of the International Committee on Bacteriological Nomenclature from its membership, together with the two Permanent Secretaries. The Commissioners are elected to serve in three classes of four Commissioners each, one class retiring at the close of the meeting of each Congress of the International Association of Microbiologists.

Class of 1956 (Term expiring at the close of the seventh Congress).

LWOFF, Prof. A. - Institut Pasteur, 28 Rue du Dr. Roux, Paris XVe, France.

PENIDO, Prof. J.C. - Instituto Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro, D.F., Brazil.

RENAUX, Prof. E. - Faculté de Médicine et de Pharmacie, Université Libre de Bruxelles, 115 Blvd. de Waterloo, Brussels, Belgium.

SORDELLI, Prof. A. - Posodas 1553, Martinez F.C.N.G. B.N., Buenos Aires, Argentina.

Class of 1959 (Term expiring at the close of the eighth Congress).

ANDREWES, Dr. C.H. - National Institute for Medical Research, The Ridgeway, Mill Hill, London NW 7, England.

RAMSBOTTOM, Dr. J. - British Museum (Natural History) Cromwell Road, London SW 7, England.

THJØTTA, Prof. Th. - Bacteriological Institute, University of Oslo, Oslo, Norway.

VAN NIEL, Prof. C.B. - Hopkins Marine Station, Pacific Grove, California, U.S.A.

Class of 1962 (Term expiring at the close of the ninth Congress).

BUCHANAN, Prof. R.E. (Chairman) - 316 Curtiss Hall, Iowa State College, Ames, Iowa, U.S.A.

KLUYVER, Prof. A.J. - Technical High School, Nieuwe Laan 3, Delft, Netherlands.

MILES, Prof. A.A. - National Institute for Medical Research, The Ridgeway, Mill Hill, London N.W. 7, England.
MURRAY, Prof. E.G.D. - Department of Bacteriology and Immunology, McGill University, Montreal, Canada.

Permanent Joint Secretaries

COWAN, Dr. S.T. - National Collection of Type Cultures, Central Public Health Laboratory, Colindale Avenue, London NW 9, England.
WIKEN, Prof. Torsten. - Inst. f. Bakteriologie u. Gärungsbiologie., Eidgenoss, Techn. Hochschule, Universitätstrasse 2, Zürich 6, Switzerland.

TAXONOMIC SUBCOMMITTEES OF THE INTERNATIONAL COMMITTEE

Provision 4 of the International Bacteriological Code of Nomenclature authorized the appointment of subcommittees of experts to consider and report on the classification of special groups of microorganisms and on other phases of the taxonomy. Eight such taxonomic subcommittees have been appointed. In some cases, the subcommittees have designated groups of experts to study and report upon certain subdivisions of the taxa under consideration.

Subcommittee on Clostridium

COWAN, Dr. S.T. (Ex-officio) - See address above.
FREDETTE, Dr. V. - 3170 Maplewood, Montreal, Canada
MC CLUNG, Dr. L.S. - Dept. of Bacteriology, Indiana University, Bloomington, Indiana, U.S.A.
MC COY, Miss E - Dept. of Agricultural Bacteriology, University of Wisconsin, Madison, Wisconsin, U.S.A.
PRÉVOT, Dr. A.R. (Chairman) - Institut Pasteur, 25 Rue du Dr. Roux, Paris XVe, France.
ROSS, Miss H.E. - National Collection of Type Cultures, Central Public Health Laboratory, Colindale Avenue, London NW 9, England.
SPRAY, Dr. R.S. - Box 742, Cumberland, Wisconsin, U.S.A.
THAYSEN, Dr. A.C. - Colonial Microbiological Research Institute, Box 581, Port of Spain, Trinidad, B.W.I.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

TURNER, Dr. A.W. - CSIR Animal Health Laboratory, Parkville N2, Victoria, Australia.

Subcommittee on Enterobacteriaceae

HORMAECHE, Prof. E. (Chairman) - Instituto de Higiene, Av. A. Ricaldoni 3051, Montevideo, Uruguay.

BENSTED, Lt. Col. H.J. - Central Public Health Laboratory, Colindale Avenue, London NW 9, England

BOYD, Brig. J.S.K. - The Wellcome Laboratories of Tropical Medicine, 183-193 Euston Rd., London NW 1, England.

BRUNER, Dr. D.W. - Dept. of Pathology and Bacteriology, New York State Veterinary College, Cornell University, Ithaca, New York, U.S.A.

CARLQUIST, Lt. Col. P.R. - 4th Army Area Medical Laboratory, Ft. Sam Houston, Texas, U.S.A.

COWAN, Dr. S.T. (Ex-officio) - Central Public Health Laboratory, Colindale Ave., London NW 9, England.

EDWARDS, Dr. P.R. - U.S. Public Health Service, Communicable Disease Center, Enteric Bacteriology Laboratories, Chamblee, Georgia, U.S.A.

FERGUSON, Dr. W.W. - Michigan State Department of Health, Lansing 4, Michigan, U.S.A.

GIOVANARDI, Prof. Dr. A. - Instituto d'Igiene, Via Fr. Sforza 35, Milano, Italia.

KAUFFMANN, Dr. F. - Statens Seruminstitut, Copenhagen S, Denmark.

LeMINOR, Dr. L. - Chief, Laboratory Service, Institute Pasteur, 25 Rue du Dr. Roux, Paris, France.

OLIN, Prof. Dr. G. - Statens Bakteriologiska Laboratorium Box 764, Stockholm 1, Sweden.

RAUSS, Prof. Dr. K. - The Hygienic Institute, Pecs, Hungary.

SEELIGER, Dr. H. - Hygiene-Institut, Bonn University, Bonn, Germany.

STUART, Prof. Dr. C.A. - Department of Bacteriology, Brown University, Providence, Rhode Island, U.S.A.

TAYLOR, Dr. Joan - Central Public Health Laboratory, Colindale Avenue, London NW 9, England

EWING, Dr. W.H. (Secretary) - Communicable Disease Center, Enteric Bacteriology Laboratory, U.S. Public Health Service, Chamblee, Georgia, U.S.A.

Subcommittee on Leptospira

Working Party

BORG PETERSEN, Dr. C. - Statens Seruminstitut, Copenhagen, Denmark.

BROOM, Dr. J.C. (Secretary) - Wellcome Laboratories, 183-193 Euston Road, London NW 1, England.

MEYER, Dr. K.F. - Medical Center, University of California, San Francisco, California, U.S.A.

WIESMANN, Dr. W. - Kanton Hospital, St. Gallen, Switzerland.

WOLFF, Prof. J.W. (Chairman) - Institute of Tropical Medicine, Maurits Kade 57, Amsterdam, Holland.

Other Members

BABUDIERI, Prof. B. - Institute di Sanitá Superiore, Rome, Italy.

BALL, Dr. M. - University of California, Los Angeles 24, California, U.S.A.

BESSEMANS, Prof. Dr. A. - Institute of Hygiene, The University, Ghent, Belgium.

COWAN, Dr. S.T. (Ex-officio) - National Collection of Type Cultures, Central Public Health Laboratory, Colindale Avenue, London NW 9, England.

DAVIS, Dr. Gordon,- Rocky Mt. Laboratory, U.S. Public Health Service, Hamilton, Montana, U.S.A.

de AZEVEDO, Prof. Fraga,- Instituto de Medicina Tropical, Lisbon, Portugal.

DERRICK, Dr. E.H. - Queensland Institute of Medical Research, William Street, Brisbane, Australia.

de SALLES GOMES, Dr. L. - Instituto Adolpho Lutz, Av. Dr. Arnaldo, São Paulo, Brazil.

GUIDA, Dr. V.O. - Instituto Biologica de São Paulo, São Paulo, Brazil.

KOLOCHINE-ERBER, Mad. B. - Institut Pasteur, Paris, France.

MUNIZ, Dr, Julio, Institut Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro, D.F. Brazil.

RENNELLA, Prof. E. - Bacteriological Institute Malbran Buenos Aires, Argentina.

SANTOS, Dr. Maria - Institut Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro, D.F. Brazil.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

SCHLOSSBERGER, Dr. H. - Hygienisches Institut der Stadt und Universität, Paul Ehrlich Strasse 40, Frankfurt a/M. Süd 10, Germany

van der HOEDEN, Dr. J. - Director of the Veterinary Institute, Tel Aviv, Israel.

VAN RIEL, Prof. J. - Institute of Tropical Medicine, Antwerp, Belgium.

van THIEL, Prof. J. - Institute of Tropical Medicine, Rapenburg 33, Leiden, Holland.

WILHELM, Prof. Ohmat.- University of Concepcion, Concepcion, Chile.

Subcommittee on Medical and Veterinary Mycopathology

AINSWORTH, Dr. G.C. - Department of Botany, University College, Exeter, Devon, Great Britain.

de ALMEIDA, Dr. Floriano - Seccão Micalogia, Departamento de Microbiologia, Faculdade de Medicina, Universidade de São Paulo, São Paulo, Brazil.

CARRION, Dr. A.L. - San Juan, Puerto Rico.

CIFERRI, Prof. R. - Instituto Botanico, Pavia Università, Via Scopoli, Pavia, Italy.

COWAN, Dr. S.T. (Ex-officio) - National Collection of Type Cultures, Central Public Health Laboratory, Colindale Avenue, London NW 9, England.

de AREA LEAO, Dr. A.E. - Laboratorio de Micologia, Institut Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro, Brazil.

DUNCAN, Dr. J.T. - 31 Nightingale Road, Rickmansworth, Herts, England.

EMMONS, Dr. C.W. - National Institute of Health, U.S. Public Health Service, Bethesda 4, Maryland, U.S.A.

MACKINNON, Prof. Juan E. -.Instituto de Higiene, Facultad de Medicina, Av. Ramon Anador 3051, Montevideo, Uruguay.

NEGRONI, Dr. P. - Pichincha 830, Buenos Aires, Brazil.

NICKERSON, Dr. W.J. (Secretary) - Microbiological Institute, Rutgers University, New Brunswick, New Jersey, U.S.A.

REDAELLI, Prof. P. - Instituto Anatomia Patologica, Università Via F. Sforza 38, Milan, Italy.

SKINNER, Dr. C.E. - Washington State College, Pullman, Washington. U.S.A.
WESTERDIJK, Prof. Johanna, Centralbureau voor Schimmelcultures, Javalaan 4, Baarn, Holland.

Subcommittee on Mycobacterium

CHAIN, Dr. E.B.- Institut Superior de la Santé, Rome, Italy.
DUBOS, Dr. R.J. - Rockefeller Institute, 66th and York Avenue, New York 21, New York, U.S.A.
GORDON, Dr. Ruth E. - Microbiological Institute, Rutgers University, New Brunswich, New Jersey, U.S.A.
HAGAN, Dr. W.A. - New York State Veterinary College, Ithaca, New York, U.S.A.
HANKS, Dr. John - Leonard Wood Memorial Leprosy Foundation, Harvard Medical School, Boston, Massachusetts, U.S.A.
HAUDUROY, Prof. P. (Chairman) - 19 Avenue de César-Roux, Lausanne, Switzerland.
JENSEN, Prof. K.A. - Universitats-Institut for Almindelig, Pathologie Juliane Maries Veg 22, Copenhagen, Denmark.
PENSO, Dr. G. (Secretary) - Instituto Superiore de Sanita, Viale Regina Margherita, 299, Rome, Italy.
REED, Prof. G.D. - Dept. of Bacteriology, Medical School, Kingston, Canada.
WELLS, Dr. A.Q. - Sir William Dunn School of Pathology, South Parks Road, Oxford, England.
WIKEN, Prof. Torsten (Ex-officio) - Inst. f. Bakteriologie u. Gärungsbiologie, Eidgenoss. Techn. Hochschule, Universitätstrasse 2, Zürich 6, Switzerland.
YAMAZAKI, Dr. Izue - Faculty of Agriculture, Kyushu University, Hakozaki-cho, Fukuoka-shi, Japan.

Subcommittee on Neisseriaceae

BRANHAM, Dr. Sara E. (Secretary) - National Institute of Health, Bethesda, Maryland, U.S.A.
BENSTED, Lt. Col. H.J. - Central Public Health Laboratory Colindale Avenue, London NW 9, England.
COHEN, Miss Sophia M. - New York State Dept. of Health, New Scotland Avenue, Albany 1, New York, U.S.A.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

COWAN, Dr. S.T. (Ex-officio) - National Collection of Type cultures, Central Public Health Laboratory, Colindale
MILLER, Dr. C. Philip - Dept. of Medicine, University of Chicago, Chicago 37, Illinois, U.S.A.
MURRAY, Prof. E.G.D. (Chairman) - Bacteriology Dept. McGill University, Montreal, Canada.
PELCZAR, Dr. M.J. - University of Maryland, College Park, Maryland, U.S.A.
PRÉVOT, Dr. A.R. - Institut Pasteur, 25 Rue du Dr. Roux, Paris XVe, France.
ST. JOHN-BROOKS, Dr. Ralph - Department of Bacteriology, Trinity College, Dublin, Ireland.
THJØTTA, Prof. Th. - Bacteriological Institute, University of Oslo, Oslo, Norway.

Subcommittee on Phage Typing of Staphylococcus

WILLIAMS, Dr. R.E.O. (Convenor) - Streptococcus Reference Laboratory, Colindale Avenue, London, NW 9, England.
COWAN, Dr. S.T. (Ex-officio) - See address above.

The complete list of members of this subcommittee had not been received at time of publication of this Bulletin. It will appear in the next issue.

Subcommittee on Streptococcus and Pneumococcus

ALLISON, Dr. V.D. (Chairman) - North Ireland Hospitals Authority, 51 Lisburn Road, Belfast, Northern Ireland.
EDDY, Dr. B. - National Institute of Health, Bethesda 14, Maryland, U.S.A.
FERRIS, Dr. A.A. - Fairfield Hospital, Melbourne, N 20, Australia.
FRY, Dr. R.M. - Public Health Laboratory Service, Tennis Court Road, Cambridge.
HANSEN, Dr. P.A. - University of Maryland, College Park, Maryland, U.S.A.
KAUFFMANN, Dr. F. - State Serum Institute, Amager Boulevard 80, Copenhagen, Denmark.
LANCEFIELD, Dr. R. - Rockefeller Institute for Medical Research, 66th St. and York Avenue, New York 21, New York, U.S.A.

LUND, Dr. E.M. - State Serum Institute, Amager Boulevard 80, Copenhagen, Denmark.
MATTICK, Dr. A.T.R. - National Institute for Research in Dairying, Shinfield, Reading, Berks, England.
MAXTED, Mr. W.R. - Streptococcus Reference Laboratory, Colindale Avenue, London, NW 9, England.
MOCQUOT, Dr. G. - Station Centrale de Microbiologie et Recherches Laitieres, Jouy-en-Josas, France.
NIVEN, Dr. C.F. Jr. - American Meat Institute Foundation, 939 E. 57th Street, Chicago, Illinois, U.S.A.
PAKULA, Dr. R. - State Institute of Hygiene, Ul. Chocimska 24, Warsaw, Poland.
PATTISON, Mr. I.H. - Agricultural Research Council, Field Station, Compton, Newbury, Berks, England.
SEELEMANN, Prof. M. - Institut für Milchhygiene, Hermann Weigmannstr. 3/11, Kiel, Germany.
SHERMAN, Dr. J.M. - Dept. of Bacteriology, New York State College of Agriculture, Cornell University, Ithaca, New York, U.S.A.
SKADHAUGE, Dr. K. - State Serum Institute, Amager Boulevard 80, Copenhagen, Denmark.
STABLEFORTH, Dr. A.W. - Ministry of Agriculture and Fisheries, New Haw, Weybridge, Surrey, England.
UPDYKE, Dr. E. - Streptococcus Laboratory, P.O. Box 185, Chamblee Georgia, U.S.A.
WAHL, Dr. R. - Institut Pasteur, 25 Rue du Docteur Roux, Paris XV, France.
WILLIAMS, Dr. R.E.O. (Secretary) - Streptococcus Reference Laboratory, Colindale Avenue, London NW 9, England.
WIKEN, Prof. Torsten (Ex-officio) - Inst. f. Bakteriologie u. Gärungsbiologie, Eidgenoss, Techn. Hochschule, Universitätstrasse 2, Zürich 6, Switzerland.
WILSON, Dr. A.T. - Alfred I. du Pont Institute of the Nemours Foundation, Wilmington 99, Delaware, U.S.A.

Subcommittee on Viruses

Animal Viruses

ANDREWES, Dr. C.H. (Chairman) - National Institute for Medical Research, The Ridgeway, Mill Hill, London NW 7, England.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

BERGOLD, Dr. G.H. - Laboratory of Insect Pathology, P.O. Box 490, Sault Ste. Marie, Ontario, Canada.
BURNET, Sir Macfarlane, F.R.S. - Walter and Eliza Hall Institute, Royal Melbourne Hospital, Parkville N2, Melbourne, Australia.
GARD, Dr. Sven, Dept. of Virus Research, Karolinska Institutet, Box 764, Stockholm 1, Sweden.
HAMMON, Dr. W. McD. - Dept. of Epidemiology, Graduate School of Public Health, University of Pittsburgh, Pittsburgh 13, Pennsylvania, U.S.A.
HENNEBERG, Prof. G. - Robert Koch Institut für Hygiene, Föhrerstrasse 2, Berlin N65, Germany.
LEPINE, Dr. P. - Institut Pasteur, 25 Rue du Docteur Roux, Paris XVe, France.
MAGRASSE, Instituto di Patologia Medica, Universita di Napoli, Piazza L. Miraglia, Napoli, Italy.
ØRSKOV, Dr. J. - Statens Seruminstitut, Amager Boulevard 80, Copenhagen, Denmark.
RAKE, Dr. G. - E.R. Squibb and Sons, Squibb Building, 745 Fifth Avenue, New York 22, New York, U.S.A.

Arthropod-borne Encephalitis Virus Group.
HAMMON, Dr. W. McD. - See address above.
LEPINE, Dr. P. - See address above.
OLITSKY, Dr. P.K. - Rockefeller Institute for Medical Research, 66th St. and York Avenue, New York 21 New York, U.S.A.

Herpes Group
ANDREWES, Dr. C.H. - See address above.
SABIN, Dr. A.B. - The Children's Hospital Research Foundation, University of Cincinnati College of Medicine, Elland and Bethesda Avenues, Cincinnati 29, Ohio, U.S.A.
SCOTT, Dr. T.F. McN. - Children's Hospital, 1740 Bainbridge Street, Philadelphia 47, Pennsylvania, U.S.A.
RIVERS, Dr. T.M. - Hospital of Rockefeller Institute, 66th St. and York Avenue, New York 21, New York, U.S.A.

Influenza Group
ANDREWES, Dr. C.H. - See address above.
BURNET, Sir Macfarlane.- See address above.
BANG, Dr. F.B. - The Johns Hopkins Hospital, Baltimore 5, Maryland, U.S.A.

Insect-pathogenic Virus Group

BERGOLD, Dr. G.H. - See address above.
BIRD, Dr. F.T. - c/o Dr. G.H. Bergold.
HUGHES, Dr. K.M. - c/o Dr. G.H. Bergold.
STEINHAUS, Dr. E.A. - Laboratory of Insect Pathology, Division of Biological Control, College of Agriculture, Berkeley, California, U.S.A.
WYATT, Dr. G.R. - Laboratory of Insect Pathology, P.O. Box 490, Sault Ste. Marie, Ontario, Canada.

Poliomyelitis Group

GEAR, Dr. J.H.S. - South African Institute for Medical Research, Hospital Street, Johannesburg, South Africa
PAUL, Dr. J.R. - Section of Preventive Medicina, Yale University School of Medicine, 333 Cedar Street, New Haven 11, Connecticut, U.S.A.
von MAGNUS, Dr. H. - Statens Seruminstitut, Amager Boulevard 80, Copenhagen, Denmark.

Pox Group

BURNET, Sir Macfarlane.- See address above.
GOODPASTURE, Dr. E.W. - Department of Pathology, Vanderbilt University, Nashville, Tennessee, U.S.A.
HORGAN, Dr. E.S. - Virus Research Institute, P.O. Box 49, Entebbe, Uganda, East Africa.

Psittacosis-lymphogranuloma Group.

BEDSON, Prof. S.P., F.R.S. - The Middlesex Hospital, London W 1, England.
GONNERT, Prof. R. - Chemotherapeutisches Laboratorium der Farbenfabriken Bayer, Wuppertal-Elberfeld, Germany.
RAKE, Dr. G. - See address above.

Bacterial Viruses

ADAMS, Dr. M.H. - Dept. of Microbiology, University of New York, New York, N.Y. U.S.A.
CRAIGIE, Dr. J., O.B.E., F.R.S. - Imperial Cancer Research Fund Laboratories, Buttonhole Lane, Mill Hill, London, NW 7, England.
NICOLLE, Dr. P. - Institut Pasteur, 25 Rue du Docteur Roux, Paris XVe, France.

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

Plant Viruses

BAWDEN, Dr. F.C., F.R.S. - Dept. of Plant Pathology, Rothamsted Experiment Station, Harpenden, Herts. England.

BENNETT, Dr. C.W. - Sugar Plant Investigations, U.S. Dept. of Agriculture, P.O. Box 31, Riverside, California, U.S.A.

BITANCOURT, Dr. A. - Instituto Biologico, Caixa Postal 119-A, São Paulo, Brazil.

KOHLER, Dr. E. - Institut für Virusforschung, Dörnbergstrasse 25/27, Celle, Germany.

LIMASSET, Dr. P. - Station Centrale de Path. Veg., Route-de-St. Cyr, Versailles, France.

MC WHORTER, Dr. F.P. - Botany and Plant Pathology Dept., Oregon State College, Corvallis, Oregon, USA.

PRENTICE, Dr. I.W. - Plant Pathology Laboratory, Ministry of Agriculture and Fisheries, Milton Road, Harpenden, Herts., England.

THUNG, Prof. T.H. - Institut voor Plantenziektenkundig Onderzoek, Binnenhaven 4a, Wageningen, Holland.

van SLOGERTEREN, Prof. E. - Laboratorium voor Bloembollen-Underzoek, Lisse, Holland.

COMMITTEE ON BACTERIA OF THE BOTANICAL CONGRESS

The International Botanical Congress has authorized the constitution of a Committee on Bacteria to serve as a liaison between bacteriologists and botanists.

ALLEN, Prof. O.N. (Chairman) - Dept. of Bacteriology, University of Wisconsin, Madison, Wisconsin, U.S.A.

AINSWORTH, Dr. G.C. - University College, Exeter, Devon, England.

BREED, Prof. R.S. - 6 Subset Drive, Geneva, New York, U.S.A.

BUCHANAN, Prof. R.E. - Room 316 Curtiss Hall, Iowa State College, Ames, Iowa, U.S.A.

COWAN, Dr. S.T. - National Collection of Type Cultures, Central Public Health Laboratories, Colindale Avenue, London NW 9, England.

LANJOUW, Prof. J. (Ex officio) - Botanisch Museum and Herbarium, Lange Nieuwstraat 106, Utrecht, Holland.

RAMSBOTTOM, Prof. John.- British Museum (Natural History), Cromwell Road, London SW 7, England.

SERMOLLI, Prof. R.E.G. Pichi.- Herbarium Universitatis Florentinae, Instituto Botanico dell "Universita, Via Lamarmora No. 4, Firenze, Italy.

THJØTTA, Prof. Th. - Villaveien 30, V. Aker. pr., Oslo, Norway.

WIKÉN, Prof. T. - Inst. f. Bakteriologie u. Gärungsbiologie, Eidg. Techn. Hochschule, Universitätstrasse 2, Zürich, Switzerland.